IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ERIK JEROEN LAHEIJ, ET AL		)	
SERIAL NO.:	10/579,595	)	EXAMINER: EDWARD JOHNSON
FILED:	May 21, 2007	)	GROUP ART UNIT: 1736
HYDROTHERMAL PROCESS FOR THE PREPARATION OF QUASI-CRYSTALLNE BEOHMITE		)	

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

BRIEF ON APPEAL

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REAL PARTY IN INTEREST

The real party in interest for this appeal is Albemarle Netherlands B.V., an entity duly organized and existing under the laws of The Netherlands, having a place of business at Nieuwendammerkade 1-3, NL-1022 AB Amsterdam, The Netherlands.

RELATED APPEALS AND INTERFERENCES

There are presently no appeals or interferences, known to Appellants, Appellants' representatives or the Assignee, which may be related to, directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1 to 4 and 7 to 18 are pending in this case. Claims 5 and 6 were cancelled. Claims 1 to 4 and 7 to 18 are being appealed. The pending Claims are reproduced in the Claims Appendix attached hereto.

STATUS OF AMENDMENTS

No amendments were filed subsequent to the Final Rejection and it is believed that the Examiner has entered the Claims listed in the Appendix.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention general relates to a hydrothermal process for producing a quasi-crystalline boehmite (QCB), which favors the production of QCB over microcrystalline boehmite (MCB). Specification, Page 8, lines 4-6.

Claim 1 relates to a process for the preparation of a quasi-crystalline boehmite comprising the steps of: a) preparing an aqueous precursor mixture comprising a water-insoluble aluminum source, b) decreasing the pH of the precursor mixture of step a) by at least 2 units, c) increasing the pH of the mixture of step b) by at least 2 units, such that the pH of the mixture is at least 10, and d) aging the mixture of step c) under hydrothermal conditions to form the quasi-crystalline boehmite. Specification, Page 4, lines 21-27.

Claim 2 depends on claim 1, wherein the pH in step b) is decreased to a value below 7. Specification, Page 6, line 28.

Claim 3 depends on claim 2, wherein the pH in step b) is decreased to a value below 5. Specification, Page 6, line 28.

Claim 4 depends on claim 3 wherein the pH in step b) is decreased to a value below 3. Specification, Page 6, line 28.

Claim 7 depends on claim 1 wherein the water-insoluble aluminum source is selected from the group consisting of aluminum trihydrate, thermally treated aluminum trihydrate, aluminum sol, aluminum gel, and mixtures thereof. Specification, Page 5, lines 7-10.

Claim 8 depends on claim 7 wherein the water-insoluble aluminum source is milled, either prior to its addition to the precursor mixture or when present in the precursor mixture. Specification, Page 9, lines 6-10.

Claim 9 depends on claim 1 and further comprises shaping the formed quasi-crystalline boehmite into shaped bodies. Specification, Page 10, lines 1-2.

Claim 10 depends on claim 1 wherein additives are added either before or during step d). Specification, Page 8, lines 21-22.

Claim 11 depends on claim 1 wherein the process is conducted in a continuous mode in one or more vessels. Specification, Page 9, lines 16-17.

Claim 12 depends on claim 11 wherein the process is conducted in at least two vessels. Specification, Page 9, lines 16-17.

Claim 13 depends on claim 11 wherein the total average residence time in all vessels

together is between 20 and 120 minutes. Specification, Page 9, lines 27-28.

Claim 14 depends on claim 1 relates to a quasi-crystalline boehmite (QCB) obtainable by the process of claim 1. Specification, Page 4, lines 18-19.

Claim 15 depends on claim 14 having where the QCB has a Z-average submicron particle size, as measured with quasi-electron light scattering, of less than 500 nm. Specification, Page 10, lines 21-25.

Claim 16 depends on claim 15, wherein the QCB has a Z-average submicron particle size is less than 300 nm. Page 10, lines 21-25.

Claim 17 depends on claim 16, wherein the QCB has a Z-average submicron particle size is less than 200 nm. Page 10, lines 21-25

Claim 18 depends on claim 17 wherein the QCB has a Z-average submicron particle size is less than 100 nm. Page 10, lines 21-25.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Anticipation under 35 U.S.C. 102(b)

Claims 1 to 4 and 7 to 18 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application No. 2003/0087750 to Stamires et al. (Stamires).

ARGUMENTS

I. Anticipation

A. Claims 1 to 4 and 7 to 18 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application No. 2003/0087750 to Stamires et al. (Stamires).

Applicants respectfully traverse the rejection of claims 1 to 18 under 35 U.S.C. 102(b) as being anticipated by Stamires since a proper prima facie case on anticipation has not been established. In order for prior art to anticipate under §102b, every element of the claim invention must be identically disclosed in a single reference. *Corning Glass Works v. Sumitomo Electric,* 9 U.S.P.Q.2d 1962, 1965 (Fed Cir. 1989). In anticipation, the claim language is applied element by element to the prior art reference. If the claim language reads literally on the reference, the claim is anticipated, if the claim does not literally read, there is no anticipation. *Lewmar Marine, In. v. Barient Inc.,* 3 U.S.P.Q.2d 1776, 1768 (Fed Cir. 1987).

Applicants respectfully submit that there are a number of distinctions and missing elements in Stamires such that it does not anticipate the present claims.

First, the Final Office Action alleges that Stamires teaches a process for making quasi-crystalline boehmite (QCB). However, this is simply not correct. (Please note that teaches is an obviousness term in the patent art). Stamires teaches a process for making anionic clay utilizing peptized boehmite as a starting material (e.g., see title and first claim). Paragraph 42 of Stamires states "The present invention involves the use of boehmite in aqueous suspensions, where at ambient or elevated temperature M sources, for instance MgO or brucite, are added and the mixture is aged to result in the formation of anionic clay" (emphasis added). Stamires does not disclose or teach a process for making the starting boehmite material and thus can not anticipate the present claims. There is absolutely no process disclosed or taught in Stamires how one would make the starting boehmite material used in its process to make the anionic clays.

The process used to make the anionic clays in Stamires does generally disclose some of the elements of the present claims, such as a pH swing, but does not disclose each and every element of the present claims, which is required for anticipation. In addition, to making anionic clays instead of boehmites (which is a required element in the claims – see 1d), Stamires fails to disclose the following elements recited in the claims:

b) decreasing the pH of the precursor mixture of step a) by at least 2 units;

The Office Action cites paragraph 80 (Example 1) stating that QCB is mixed with nitric acid and the QCB became translucent, which the Office Action alleges proves that the pH was below 3. First, as discussed above, QCB is the end or final product of the present claims, thus mixing nitric acid with QCB is not reducing the pH of a precursor mixture. Precursor mixture does not mean the final product, but some mixture before the final product. Present claim 7 discloses some of the aluminum sources for the precursor mixture and QCB is not one of them because QCB is the final product. Secondly, the Office Action states that in order for QCB to be translucent, it must be below a pH of 3. There is no support in Stamires or any other source for that argument, plus, the Example does not disclose what the pH of the starting material was in order to prove that the pH was lowered more than 2 pH units. The Office Action contention is mere speculation, which can not be a basis for anticipation.

(c) increasing the pH of the mixture of step b) by at least 2 units, such that the pH of the mixture is at least 10;

The Final Office Action cites paragraph 82 (should be 84) for raising the pH to 10. Paragraph 84 of Stamires states that the pH was raised to about 10, it does not state that it was at least 10. Thus, it does not anticipate because it could have been below 10 and the Example does not provide any component amounts or concentrations in order to calculate the true pH value. The Advisory Action tries to rebut this argument by stating that about 10 includes values above 10. This may be the case for an obviousness rejection, but speculation like this is not the test for anticipation.

Again, the most substantive and clear argument is that the present claims recite in step 1d that the process produces quasi-crystalline boehmite (QCB). Stamires, on the other hand, starts with QCB. Thus, the rhetorical question has to be asked is how can Stamires anticipate the present process claims for producing QCB, when Stamires starts with QCB to make a different end product material and never discloses how to make QCB? Applicants, with all due respect to the PTO, submit that the anticipation rejection simply does not make any sense and must be withdrawn.

RELIEF REQUESTED

Reversal of all of the rejections in this case, and a finding that the pending Claims are allowable over the cited references are respectfully requested.

Respectfully submitted,

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CLAIMS APPENDIX

1. (Previously presented) Process for the preparation of a quasi-crystalline boehmite comprising the steps of:
    a) preparing an aqueous precursor mixture comprising a water-insoluble aluminium source,
    b) decreasing the pH of the precursor mixture of step a) by at least 2 units,
    c) increasing the pH of the mixture of step b) by at least 2 units, such that the pH of the mixture is at least 10, and
    d) aging the mixture of step c) under hydrothermal conditions to form the quasi-crystalline boehmite.
2. (Original) A process according to claim 1 wherein the pH in step b) is decreased to a value below 7.
3. (Original) A process according to claim 2 wherein the pH in step b) is decreased to a value below 5.
4. (Original) A process according to claim 3 wherein the pH in step b) is decreased to a value below 3.
5. (Cancelled
6. (Cancelled)
7. (Previously Presented) A process according to claim 1 wherein the water-insoluble aluminium source is selected from the group consisting of aluminium trihydrate, thermally treated aluminium trihydrate, aluminium sol, aluminium gel, and mixtures thereof.
8. (Previously Presented) A process according to claim 7 wherein the water-insoluble aluminium source is milled, either prior to its addition to the precursor mixture or when present in the precursor mixture.
9. (Previously Presented) A process according to claim 1 further comprising shaping the formed quasi-crystalline boehmite into shaped bodies.
10. (Previously Presented) A process according to claim 1 wherein additives are

added either before or during step d).

11. (Previously Presented) A process according to claim 1 wherein the process is conducted in a continuous mode in one or more vessels.

12. (Original) A process according to claim 11 wherein the process is conducted in at least two vessels.

13. (Previously Presented) A process according to claim 11 wherein the total average residence time in all vessels together is between 20 and 120 minutes.

14. (Previously Presented) A quasi-crystalline boehmite obtainable by the process of claim 1.

15. (Original) A quasi-crystalline boehmite according to claim 14 having a Z-average submicron particle size, as measured with quasi-electron light scattering, of less than 500 nm.

16. (Original) A quasi-crystalline boehmite according to claim 15 wherein the Z-average submicron particle size is less than 300 nm.

17. (Original) A quasi-crystalline boehmite according to claim 16 wherein the Z-average submicron particle size is less than 200 nm.

18. (Original) A quasi-crystalline boehmite according to claim 17 wherein the Z-average submicron particle size is less than 100 nm.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None